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IN THE CLAIMSAmendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Where claims have been amended and/or canceled, such amendments and/or cancellations are done without prejudice and/or waiver and/or disclaimer to the claimed and/or disclosed subject matter, and the applicant and/or assignee reserves the right to claim this subject matter and/or other disclosed subject matter in a continuing application.

Listing of Claims:

What is claimed is:

1. (Currently Amended) A method of enhancing scan resolution, suitable for use in a scanner with an optical sensor, the optical sensor having wherein a range that a detecting cell that can detect a range of the optical sensor can detect comprises comprising a predetermined number of two or more original pixels with a predetermined number, and a result of one detection by the detecting cell comprises a scanned pixel, the method comprising:

scanning a smooth image region to obtain a smooth image data, wherein the smooth image region comprises at least the predetermined number of original pixels with the predetermined number and wherein the smooth image region comprises a uniform brightness, to obtain a smooth image data; and

processing scanned images obtained by scanning a document according to the smooth image data.

2. (Original) The method according to claim 1, wherein the smooth image data is obtained prior to scanning the document.

3. (Previously Presented) The method according to claim 2, wherein processing the scanned images obtained by scanning the document further comprises:

obtaining a calculated smooth brightness of the original pixels corresponding to scanned pixels of the smooth image data; and

using a calculated brightness corresponding to the original pixels with the predetermined number minus one in the smooth image region as a standard to calculate the calculated brightness corresponding to original pixels of the document.

4. (Original) The method according to claim 3, wherein when there are original pixels with a pre-pixel number prior to the original pixels to be calculated, calculating the calculated brightness corresponding to the original pixels in the document comprises:

comparing the brightness of the scanned pixel to the brightness of the original pixels with a number equal to the predetermined number minus one prior to the original pixels to be calculated when the pre-pixel number is greater than or equal to the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated; and

comparing the brightness of the scanned pixels to the brightness of calculated brightness corresponding to the original pixels prior to the original pixels to be calculated, and the smooth calculated brightness of the original pixels with the predetermined number minus the pre-pixel number and minus one when the pre-pixel is smaller than the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated.

5. (Previously Presented) The method according to claim 3, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises performing a real time calculation while scanning the document.

6. (Previously Presented) The method according to claim 3, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises calculating after scanning the document.

7. (Original) The method according to claim 1, wherein the smooth image data is obtained after scanning the document.

8. (Original) The method according to claim 7, wherein obtaining the scanned pixel while scanning the document comprises:

obtaining a calculated smooth brightness of the corresponding original pixels from the scanned pixels of the smooth image data; and

using a corresponding calculated brightness of the original pixel with the predetermined number minus one in the smooth image region as a standard to calculate a calculated brightness corresponding to the original pixels of the document.

9. (Original) The method according to claim 8, wherein when there are original pixels with a pre-pixel number prior to the original pixels to be calculated, calculating the calculated brightness corresponding to the original pixels of the document comprises:

comparing the brightness of the scanned pixel to the brightness of the original pixels with a number equal to the predetermined number minus one prior to the original pixels to be calculated when the pre-pixel number is greater than or equal to the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated; and

comparing the brightness of the scanned pixels to the brightness of calculated brightness corresponding to the original pixels prior to the original pixels to be calculated, and the smooth calculated brightness of the original pixels with the predetermined number minus the pre-pixel number and minus one when the pre-pixel is smaller than the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated.

10. (Currently Amended) A method of enhancing scan resolution, suitable for use in a scanner with an optical sensor, the optical sensor having wherein a range that a detecting cell that can detect a range of the optical sensor can detect comprises comprising a predetermined number of two or more original pixels with a predetermined number, and a result of one detection by the detecting cell comprises a scanned pixel, the method comprising:

scanning a smooth image region to obtain a smooth image data, wherein the smooth image region comprises at least the predetermined number of original pixels with the predetermined number and comprises a uniform brightness, to obtain a smooth image data; and

processing scanned images obtained by scanning a document according to the smooth image data, wherein processing the scanned images comprises further comprising:

obtaining a calculated smooth brightness of the original pixels corresponding to scanned pixels of the smooth image data;[[,]] and

using a calculated brightness corresponding to the original pixels with the predetermined number minus one in the smooth image region as a standard to calculate the calculated brightness corresponding to original pixels of the document.

11. (Previously Presented) The method according to claim 10, wherein the smooth image data is obtained prior to scanning the document.

12. (Previously Presented) The method according to claim 10, wherein when there are original pixels with a pre-pixel number prior to the original pixels to be calculated, calculating the calculated brightness corresponding to the original pixels in the document comprises:

comparing the brightness of the scanned pixel to the brightness of the original pixels with a number equal to the predetermined number minus one prior to the original pixels to be calculated when the pre-pixel number is greater than or equal to the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated; and

comparing the brightness of the scanned pixels to the brightness of calculated brightness corresponding to the original pixels prior to the original pixels to be calculated, and the smooth calculated brightness of the original pixels with the predetermined number minus the pre-pixel number and minus one when the pre-pixel is smaller than the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated.

13. (Previously Presented) The method according to claim 10, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises performing a real time calculation while scanning the document.

14. (Previously Presented) The method according to claim 10, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises calculating after scanning the document.

15. (Previously Presented) The method according to claim 10, wherein the smooth image data is obtained after scanning the document.

16. (Previously Presented) A method comprising:
scanning a smooth image region with a uniform brightness;
obtaining a standard brightness from the smooth image region; and
determining a calculated brightness for at least a portion of a second image region based at least in part on the standard brightness.

17. (Previously Presented) The method according to claim 16, wherein the second image region comprises at least a portion with a non-uniform brightness.

18. (Previously Presented) The method according to claim 16, wherein the scanning of the smooth image region with a uniform brightness is performed prior to scanning the second image region.

19. (Previously Presented) The method according to claim 16, wherein the scanning of the smooth image region with a uniform brightness is performed after scanning the second image region.

20. (Currently Amended) An article of manufacture, comprising: a storage medium having one or more instructions stored thereon that, if executed, result in: enhancing scan resolution in a scanner with an optical sensor, the optical sensor having wherein a range that a detecting cell of the optical sensor can detect comprises comprising a predetermined number of two or more original pixels ~~with a predetermined number~~, and a result of one detection by the detecting cell comprises a scanned pixel, wherein enhancing scan resolution comprises:

scanning a smooth image region to obtain a smooth image data, wherein the smooth image region comprises at least the predetermined number of original pixels with the predetermined number and ~~comprises a uniform brightness, to obtain a smooth image data~~; and
processing scanned images obtained by scanning a document according to the smooth image data, wherein processing the scanned images comprises further comprising:

obtaining a calculated smooth brightness of the original pixels corresponding to scanned pixels of the smooth image data;[[,]] and

using a calculated brightness corresponding to the original pixels with the predetermined number minus one in the smooth image region as a standard to calculate the calculated brightness corresponding to original pixels of the document.

21. (Previously Presented) The article of claim 20, wherein the smooth image data is obtained prior to scanning the document.

22. (Previously Presented) The article of claim 20, wherein when there are original pixels with a pre-pixel number prior to the original pixels to be calculated, the instructions, if executed, further result in calculating the calculated brightness corresponding to the original pixels in the document comprising:

comparing the brightness of the scanned pixel to the brightness of the original pixels with a number equal to the predetermined number minus one prior to the original pixels to be calculated when the pre-pixel number is greater than or equal to the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated; and

comparing the brightness of the scanned pixels to the brightness of calculated brightness corresponding to the original pixels prior to the original pixels to be calculated, and the smooth calculated brightness of the original pixels with the predetermined number minus the pre-pixel number and minus one when the pre-pixel is smaller than the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated.

23. (Previously Presented) The article of claim 20, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises performing a real time calculation while scanning the document.

24. (Previously Presented) The article of claim 20, wherein calculating the calculated brightness corresponding to the original pixels in the document comprises calculating after scanning the document.

25. (Previously Presented) The article of claim 20, wherein the smooth image data is obtained after scanning the document.

26. (Currently Amended) ~~An article of manufacture, comprising: a~~ A computer-readable storage medium having one or more instructions stored thereon that, if executed, result in:
scanning a smooth image region with a uniform brightness;
obtaining a standard brightness from the smooth image region; and
determining a calculated brightness for at least a portion of a second image region based at least in part on the standard brightness.

27. (Currently Amended) The computer-readable storage medium article of claim 26, wherein the second image region comprises at least a portion with a non-uniform brightness.

28. (Currently Amended) The computer-readable storage medium article of claim 26, wherein the scanning of the smooth image region with a uniform brightness is performed prior to scanning the second image region.

29. (Currently Amended) The computer-readable storage medium article of claim 26, wherein the scanning of the smooth image region with a uniform brightness is performed after scanning the second image region.

30. (Currently Amended) An apparatus, comprising:
means for enhancing scan resolution in a scanner with an optical sensor, the optical sensor having wherein a range that a detecting cell of the optical sensor can detect comprises comprising a predetermined number of two or more original pixels with a predetermined number, and a result of one detection by the detecting cell comprises a scanned pixel, wherein the means for enhancing scan resolution comprises:

means for scanning a smooth image region to obtain a smooth image data, wherein the smooth image region comprises at least the predetermined number of original pixels with the predetermined number and comprises a uniform brightness, to obtain a smooth image data; and

means for processing scanned images obtained by scanning a document according to the smooth image data, wherein the means for processing the scanned images comprises further comprising:

means for obtaining a calculated smooth brightness of the original pixels corresponding to scanned pixels of the smooth image data_i[[.]] and

means for using a calculated brightness corresponding to the original pixels with the predetermined number minus one in the smooth image region as a standard to calculate the calculated brightness corresponding to original pixels of the document.

31. (Previously Presented) The apparatus of claim 30, wherein the means for scanning a smooth image region comprises means for obtaining smooth image data prior to scanning the document.

32. (Currently Amended) The apparatus of claim 30, wherein when there are original pixels with a pre-pixel number prior to the original pixels to be calculated the means for using a calculated brightness further comprise[[s]]:

means for comparing the brightness of the scanned pixel to the brightness of the original pixels with a number equal to the predetermined number minus one prior to the original pixels to be calculated when the pre-pixel number is greater than or equal to the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated; and

means for comparing the brightness of the scanned pixels to the brightness of calculated brightness corresponding to the original pixels prior to the original pixels to be calculated, and the smooth calculated brightness of the original pixels with the predetermined number minus the pre-pixel number and minus one when the pre-pixel is smaller than the predetermined number minus one, so as to obtain the calculated brightness of the original pixels to be calculated.

33. (Currently Amended) The apparatus of claim 30, wherein the means for using a calculated brightness further comprise[[s]] means for performing a real time calculation while scanning the document.

34. (Currently Amended) The apparatus of claim 30, wherein the means for using a

calculated brightness further comprise[[s]] means for calculating after scanning the document.

35. (Currently Amended) The apparatus of claim 30, wherein means for scanning a smooth image region comprise[[s]] means for obtaining the smooth image data after scanning the document.

36. (Previously Presented) An apparatus, comprising:
means for scanning a smooth image region with a uniform brightness;
means for obtaining a standard brightness from the smooth image region; and
means for determining a calculated brightness for at least a portion of a second image region based at least in part on the standard brightness.

37. (Currently Amended) The apparatus of claim 36, means for determining of the calculated brightness for at least a portion of the second image region based at least in part on the standard brightness comprise means for determining of the calculated brightness for at least a portion of the second image region having wherein the second image region comprises at least a portion with a non-uniform brightness.

38. (Currently Amended) The apparatus of claim 36, wherein the means for scanning of the smooth image region with a uniform brightness comprise[[s]] means for scanning of the smooth image region with a uniform brightness prior to scanning the second image region.

39. (Currently Amended) The apparatus of claim 36, wherein the means for scanning of the smooth image region with a uniform brightness comprise[[s]] means for scanning of the smooth image region with a uniform brightness after scanning the second image region.

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